PARADYNE®

4300 Remote Broadband Access Concentrator

Installation Instructions

Document Number 4300-A2-GZ40-00

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Using This Installation Guide

This publication provides a description of the 4300 Remote Broadband Access Concentrator (BAC). Typical applications, mechanical descriptions, installation instructions, safety guidelines, grounding instructions, and wiring diagrams are included.

Two types of messages appear throughout this manual, identified by the following icons:

Note - indicates special conditions.

Caution - indicates possibility of personal injury or equipment damage.

Product Documentation Online

Complete documentation for this product is available at **www.paradyne.com**. Select *Support → Technical Manuals.*

Select the following documents:

2600-A2-GB21
GranDSLAM 4200 IP DSLAM Command Line Interface Reference

2600-A2-GB22
GranDSLAM 4200 IP DSLAM SNMP Reference

2600-A2-GT20
GranDSLAM 4200 IP DSLAM Training Guide

4200-A2-GB20
GranDSLAM 4200 ATM DSLAM User's Guide

4200-A2-GN20
GranDSLAM 4200 ATM DSLAM Installation Guide

4200-A2-GN21
GranDSLAM 4200 IP DSLAM Installation Guide

4300-A2-GZ41-00
Field Upgrade Kit for the 4300 Remote BAC, Feature Number 4300-F1-100, Installation Instructions

4300-A2-GZ42-00
Pole Mounting Kit for the 4300 Remote BAC, Feature Number 4300-F1-400, Installation Instructions

4300-A2-GZ43-00
Wall Mounting Kit for the 4300 Remote BAC, Feature Number 4300-F1-401, Installation Instructions

4300-A2-GZ44-00
Fan Replacement Kit for the 4300 Remote BAC, Feature Number 4300-F1-500, Installation Instructions

4300-A2-GZ45-00
Filter Replacement Kit for the 4300 Remote BAC, Feature Number 4300-F1-501, Installation Instructions

To order a paper copy of a Paradyne document, or to speak with a sales representative, please call 727-530-2000.

Inspecting Shipment

On receipt of the equipment, inspect the shipping container(s) and note any signs of damage. Then unpack the container(s) and carefully inspect for damage to the contents. If the equipment has been damaged in transit, immediately report the extent of damage to the transportation company and your sales representative.

Warranty, Sales, Service, and Training Information

Contact your local sales representative, service representative, or distributor directly for any help needed. For additional information concerning warranty, sales, service, repair, installation, documentation, training, distributor locations, or Paradyne worldwide office locations, use one of the following methods:

- **Internet:** Visit the Paradyne World Wide Web site at **www.paradyne.com**. (Be sure to register your warranty at **www.paradyne.com/warranty**.)
- **Telephone:** Call our automated system to receive current information by fax or to speak with a company representative.

  – Within the U.S.A., call 1-800-870-2221

  – Outside the U.S.A., call 1-727-530-2340

Trademarks

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Product Overview

The 4300 Remote BAC is a pole-mounted or wall-mounted outdoor telecommunications equipment cabinet. The cabinet has overall dimensions of 26 inches high x 19 inches deep x 22 inches wide. See the figures on the following pages for details.

The cabinet is constructed of aluminum with a powder coat painted finish for reduced weight and superior corrosion resistance. The front door is equipped with a quarter turn padlockable door latch. The top of the cabinet has a double wall construction to reduce the effects of solar radiation and for structural integrity.

Cooling is provided by a –48 VDC fan ventilation system. The fan is mounted to the roof of the cabinet behind the equipment. The fan pulls air through the front door of the cabinet and exhausts the air through the roof overhang and the louvers in the sides of the roof.

The left front of the equipment-mounting bay has 6U (10.5 inches) of 19" rack space provided for mounting up to three GranDSLAM 4200 assemblies (1U each) and a rectifier or a DC-DC converter (2U each). An additional 1U is provided for future expansion. Two swing-out 19” racks are provided on the right side of the equipment bay for mounting up to four 50 pair protection/cross connect assemblies (200 pair capacity). Each protection/cross connect swing-out rack has 4U of 19” rack space (8U total).

Cable entry and exit from the cabinet passes through two sealing boots located in the bottom rear of the equipment bay. The master grounding bus bar is located on the rear wall of the equipment bay on the left side. AC and DC power centers are mounted to the rear wall on the right side.

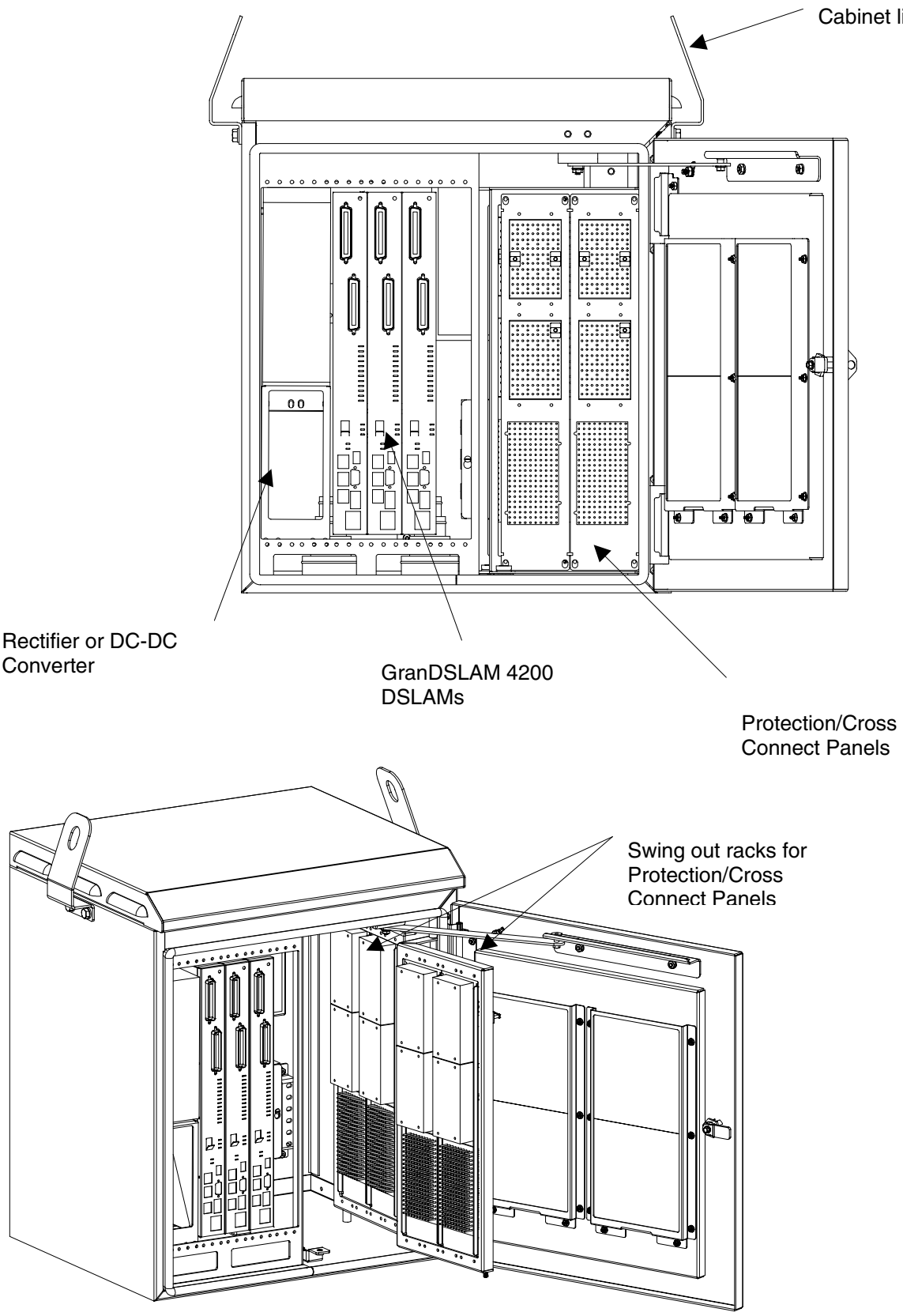
Cabinet lifting eyelets
Rectifier or DC-DC Converter
GranDSLAM 4200 DSLAMs
Protection/Cross Connect Panels
Swing out racks for Protection/Cross Connect Panels

Figure A - Front view of cabinet with door open

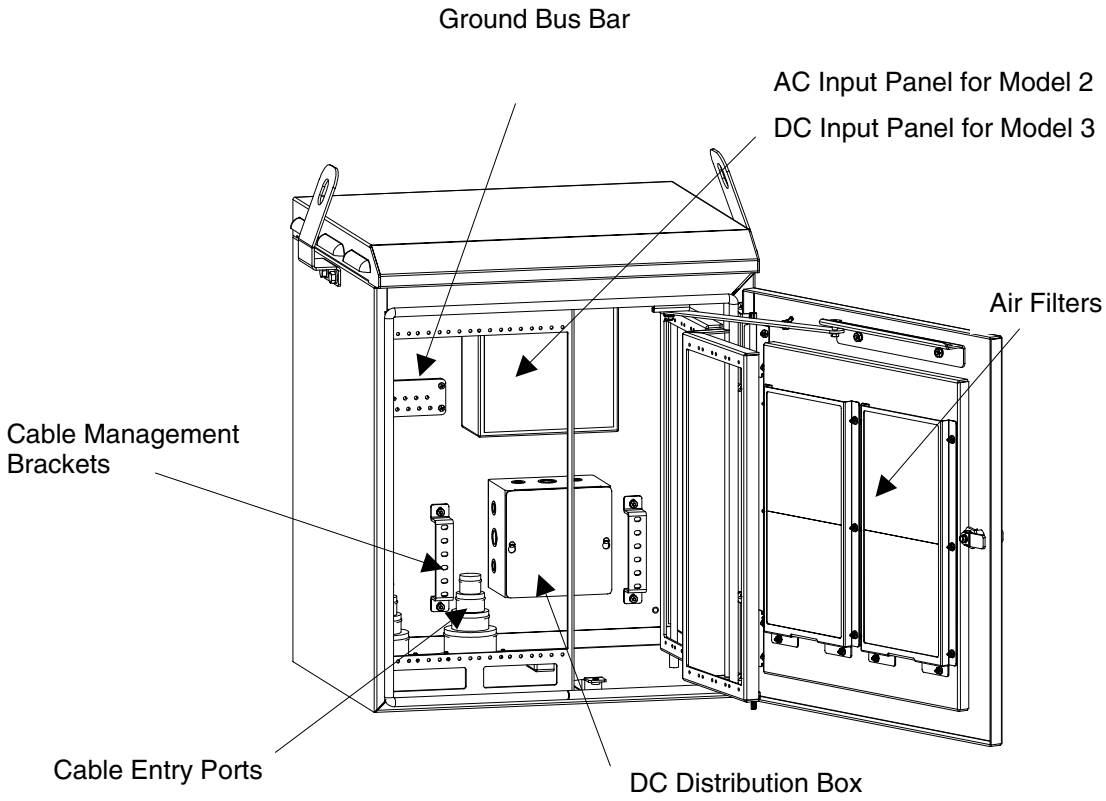

Figure B - Front view of cabinet without equipment

CABINET CONFIGURATIONS

Three basic cabinet configurations are offered as explained below. Expansion kits are provided to increase the capacity of each configuration to up to three GranDSLAM 4200 DSLAMs. Kits are also provided for fan and filter replacement and for pole or wall mounting brackets.

Model numbers are of the form 43*WX*-P1-*Y*0*Z*, where:

- *W* is the DSL type (1 for ReachDSL, 2 for ADSL, 3 for ADSL Annex B, 7 for SHDSL)
- *X* is the uplink type (1 for T1 ATM, 2 for E1 ATM, 3 for 8-port T1/E1 IMA, 9 for 10/100/1000BaseT/GigE fiber)
- *Y* is the power type (1 for externally-fed –48/–60 VDC, 2 for AC, 3 for line power)
- *Z* is the splitter option (0 for 900 ohm, 1 for 600 ohm)

The three basic cabinet configurations are:

Model 1 (Feature Number 43xx-P1-10x) - Cabinet to be used at existing remote terminal sites, where the RT can supply –48 VDC power. This model will be wired for one GranDSLAM assembly.

Model 2 (Feature Number 43xx-P1-20x) – Cabinet to be used where AC power is available. This model will be wired for one GranDSLAM assembly and will include an AC load center and a –48 VDC rectifier.

Model 3 (Feature Number 43xx-P1-30x) – Cabinet to be used where AC power is not available. Power to the cabinet will be provided by up to 25 common pairs. The tips and rings of the pairs are bussed together and fed to a DC-DC converter, which provides the –48 VDC power to the GranDSLAM assemblies. The input voltage to the DC-DC converter is 90 to 400 VDC. This model will be wired for one GranDSLAM assembly.

EXPANSION, MOUNTING AND MAINTENANCE KITS

See Table 1 for expansion kit part numbers. The Ordering Procedure section of this document contains instructions for ordering the kits.

Table 1 - Expansion, Mounting and Maintenance Kits

Feature Number	Description
4300-F1-100	Field upgrade for adding one protected GranDSLAM assembly to Model 1, 2 or 3. Includes one 50 pair protection/100 pair cross connect block and associated cabling.
4300-F1-400	Pole mounting kit. Includes mounting brackets and hardware for pole mounting the cabinet.
4300-F1-401	Wall mounting kit. Includes mounting brackets and hardware for wall mounting the cabinet.
4300-F1-500	Fan field replacement kit. Includes one –48 VDC fan assembly.
4300-F1-501	Filter field replacement kit. Includes the filters required for one cabinet.

PRODUCT SPECIFICATIONS

Cabinet outer physical dimensions:

Height	–	26 inches (66 cm)
Width	–	22 inches (56 cm) — does not include heat exchanger
Depth	–	19 inches (48 cm) internal
Approx. Weight	–	60 pounds (27 kg)

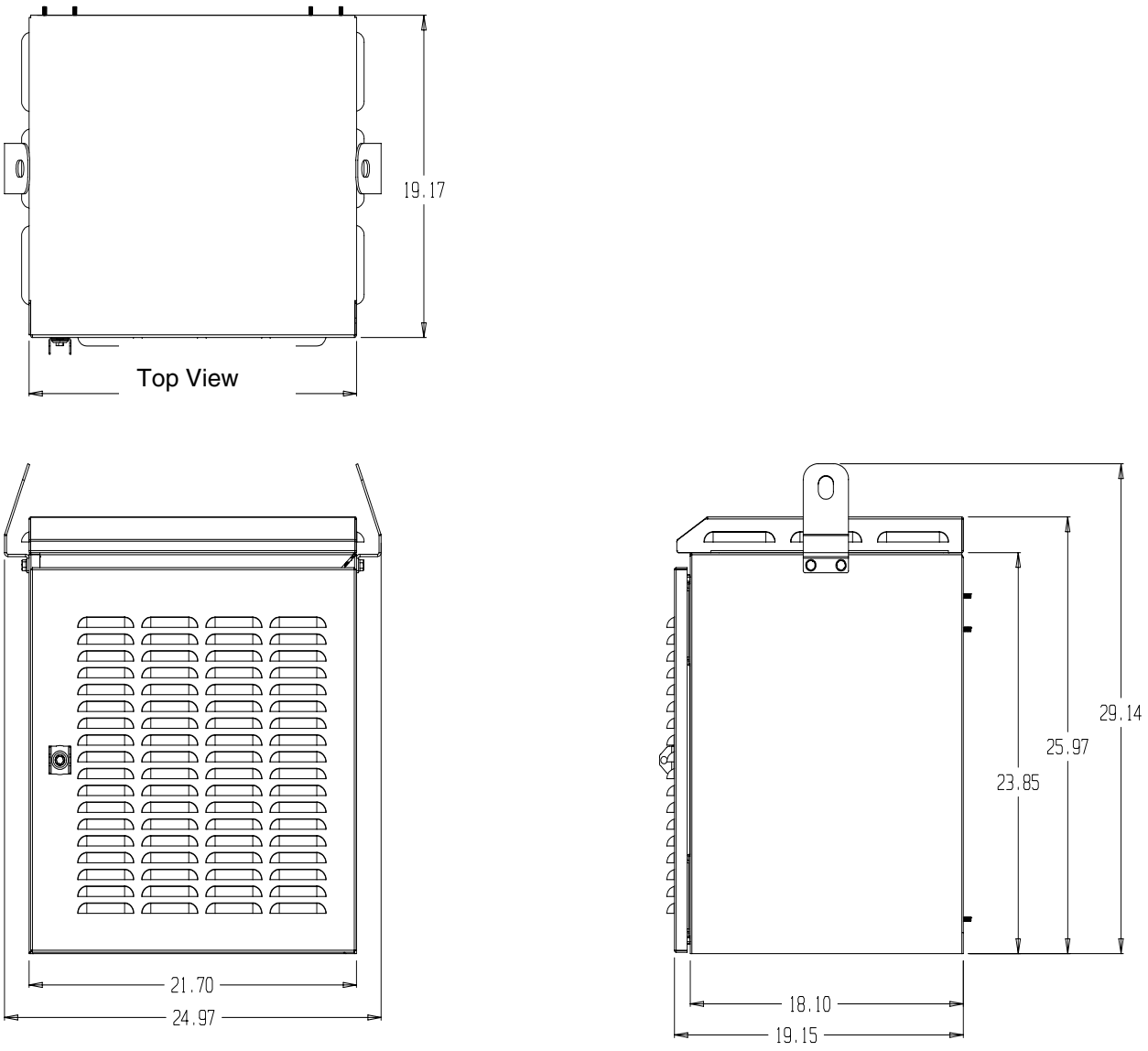

Figure C – Cabinet overall dimensions

QUARTER-TURN LOCKING DOOR LATCHES

The cabinet door is equipped with 2 quarter-turn padlockable latches. The latches are secured by turning the 7/16" hex security bolt one quarter turn clockwise until the stop is reached. Convenient security locking hasps are factory installed to allow for a #1 Master Lock padlock (or equivalent) to be installed. With a padlock on the latch, the door cannot be opened, deterring vandalism.

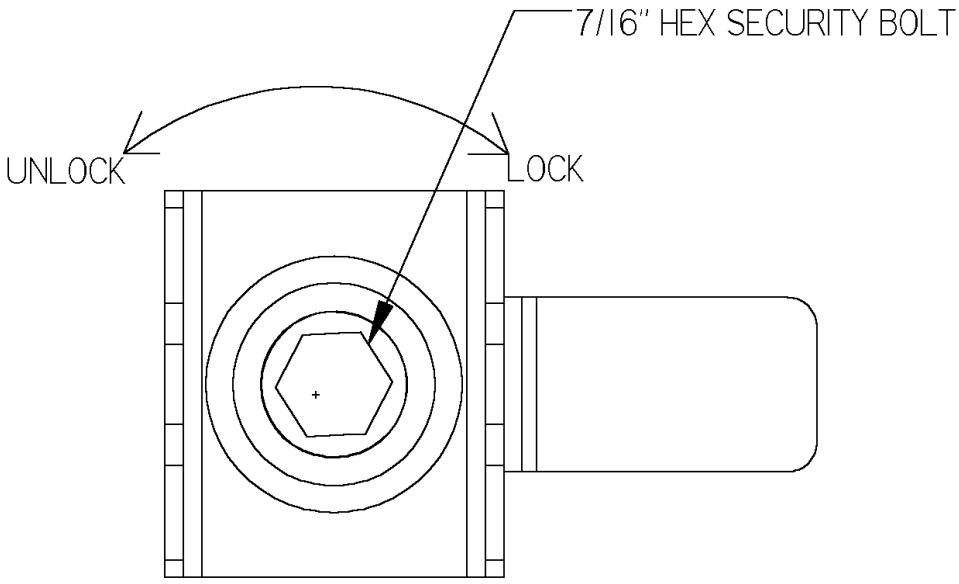

Figure D – Quarter turn locking door latches

Installation Procedure

The 4300 Remote BAC can be mounted on a pole or wall. See figures below.

Lifting eyelets are provided to facilitate hoisting if desired.

During cabinet mounting, fix the cabinet securely to avoid personal injury or cabinet damage.

CLEARANCE REQUIREMENTS

When selecting a location to mount the cabinet, ensure that proper clearance is available to allow adequate ventilation and to allow the cabinet door to open fully. See figure E below for the top view of the cabinet footprint.

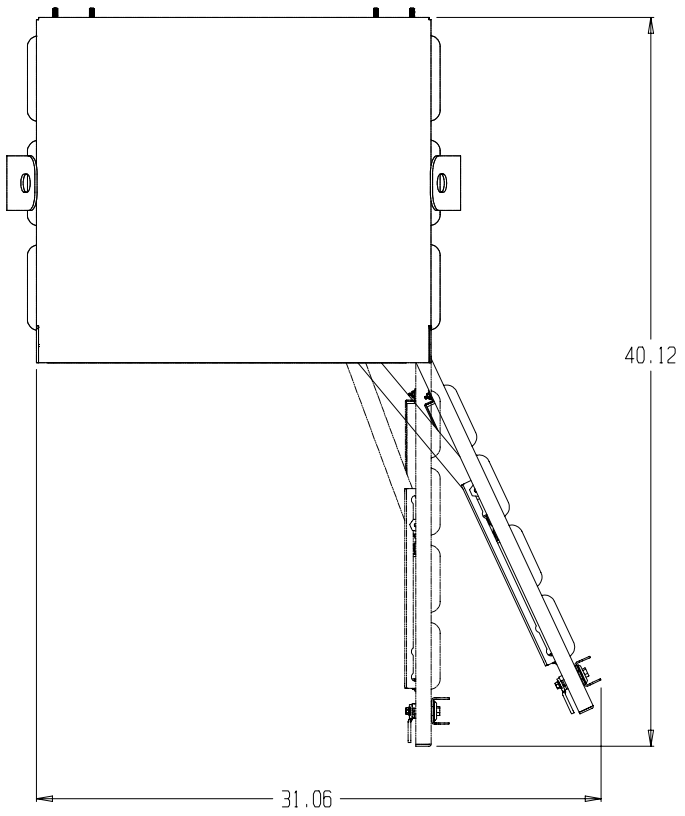

Figure E - Cabinet Footprint

INSTALLATION PROCEDURE FOR POLE MOUNTING

Use this procedure to mount the cabinet on a 6-inch to 8-inch diameter pole. See Figure F below for a cabinet mounting illustration.

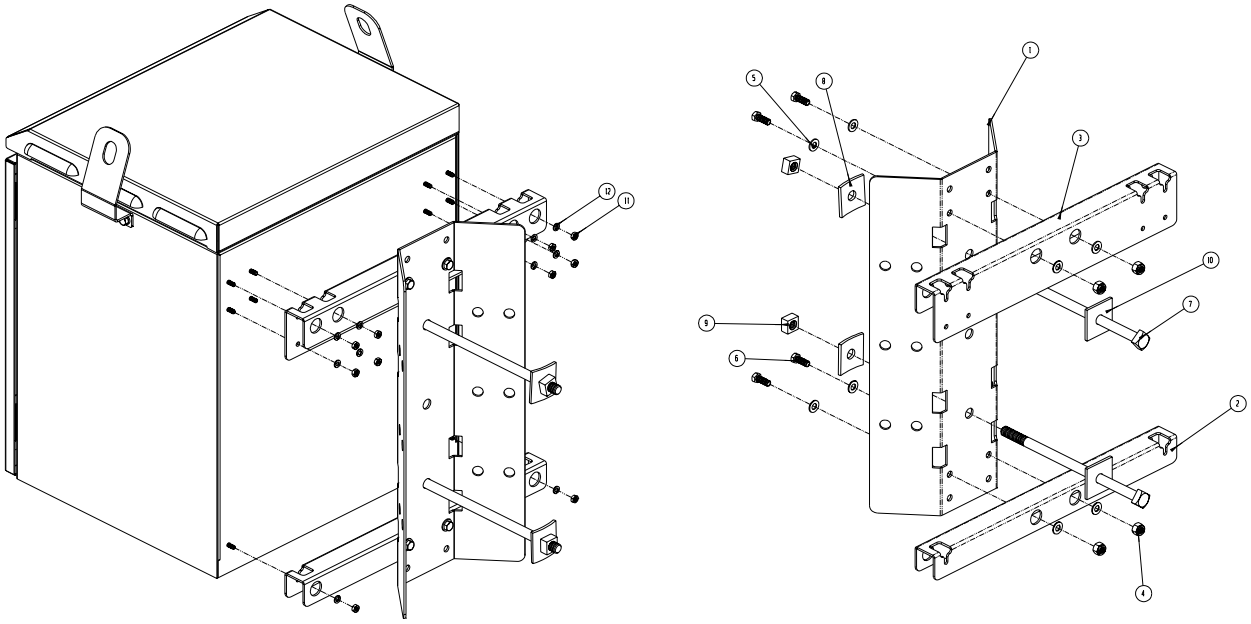

Figure F - Pole Mounting Diagram

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	1	S10600-055	BRACKET, VERTICAL POLE MOUNT, ACCESS
2	1	S10600-054	BRACKET, LOWER POLE MOUNT, ACCESS
3	1	S10600-053	BRACKET, UPPER POLE MOUNT, ACCESS
4	4	H38CPSLNNIZ	Nut, Nylon Top Lock 3/8"
5	8	H38NSSFW	Washer, 3/8" Stainless Steel, SAE, Flat
6	4	H38C100SSMSHH	Screw, 3/8-16 x 1", Stainless Steel, Cap
7	2	H63C1600PSSHGV	Bolt, Square Head, 5/8-11 x 16 & Nut, Galvanized
8	2	H63NPSCWGV	Washer, Curved, 2 1/4 x 2 1/4 x 3/16, 5/8, Galvanized
9	2	H63NUT	Nut, 5/8, Galvanized (Included with Bolt)
10	2	H63NPSSWGV	Washer, Square, 2 1/4 x 2 1/4 x 3/16, 5/8, Galvanized
11	10	H25CSSHN	NUT, 1/4-20, HEX, STAINLESS STEEL
12	10	H25NSSLWSP	WASHER, 1/4 SPLIT LOCK, STAINLESS STEEL

Have the following equipment ready before beginning this procedure:

One drill

One 3/4” x 12” drill bit

One 9/16” wrench

Two 15/16” wrenches

One 7/16” wrench

A pencil

Optional pole mounting kit

Follow the sequence below for pole mounting.

1. Pre-assemble the upper and lower horizontal brackets to the vertical bracket as shown in the above Figure.
2. Select a convenient mounting location on the pole.
3. Position the mounting bracket assembly against the pole and mark on the pole the location of the two (2) 5/8 “ bolts (item 18).
4. Place the mounting bracket assembly out of the way.
5. Drill two (2) 3/4” (19 mm) diameter holes completely through the pole at the locations marked in step 2.
6. Insert machine bolt (item 18) through mounting bracket and into the top mounting hole and press bolt and bracket flush against the pole.
7. Place round-cupped washer (item 21), with the concave side in, on bolt and finger tighten nut.
8. Repeat step 6 for remaining bolt.
9. Secure the mounting bracket assembly to the pole by securely tightening the machine bolts to 40 ft-lbs for wooden posts and 100 ft-lbs for metal posts.
10. Using proper lifting and safety equipment, place cabinet on mounting bracket assembly using supplied 3/8” hardware and tighten to 45 ft-lbs. Lifting eyelets are provided on the cabinet for hoisting it in place.
11. If the cable stubs connect to an underground cable, dress the cable down the pole. If the cable stubs connect to an aerial cable, form a drip loop in the cable and dress it up the pole to the splice case.

For mounting heights less than 7’ above grade, excess bolt length may need to cut off in order to prevent a hazardous protrusion.

Lifting eyelets are provided to facilitate hoisting if desired.

INSTALLATION PROCEDURE FOR WALL MOUNTING

Use this procedure to mount the cabinet on a flat wall. See Figure G below for a cabinet mounting illustration.

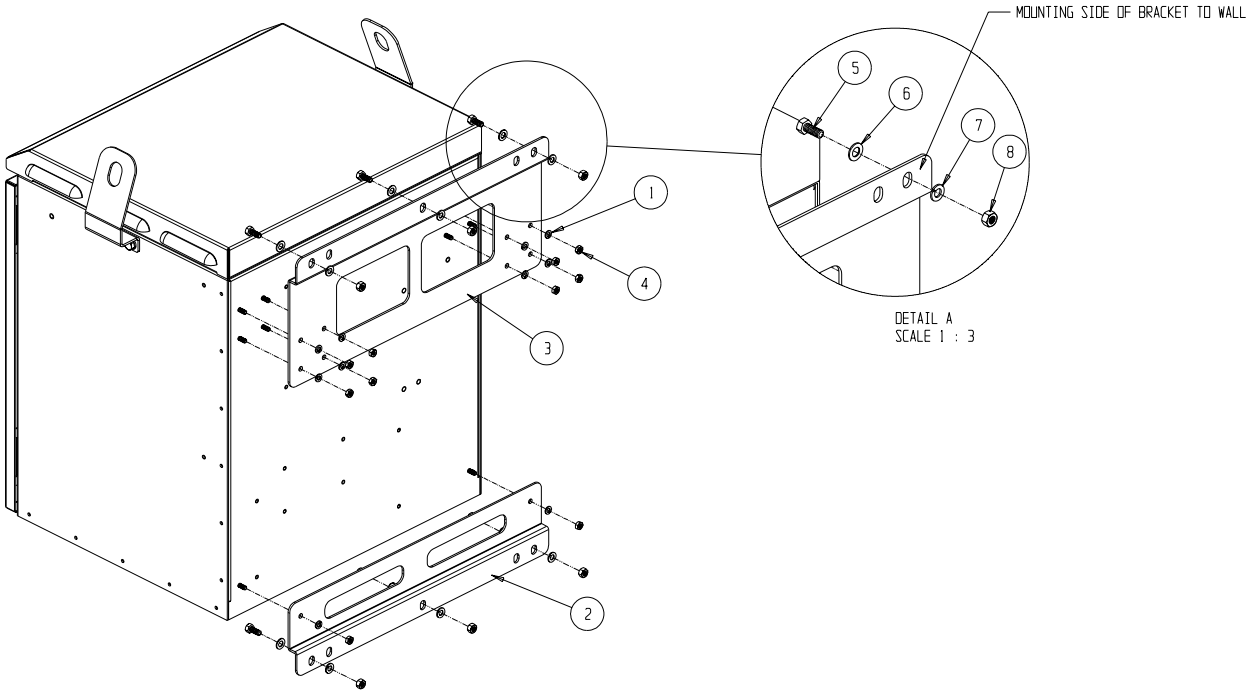

Figure G - Wall Mounting Diagram

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	10	H25NSSLWSP	Washer, 1/4, Split Lock, S/S
2	1	S10600-034	BRACKET, WALL MOUNT, LOWER
3	1	S10600-033	BRACKET, WALL MOUNT, UPPER
4	10	H25CSSHN	Nut, 1/4-20, Hex, Stainless Steel
5	6	H31C75SSMSHH	Bolt, 5/16-18 X 3/4 Inch, Hex Head, Stainless Steel
6	6	H31NSSFW	Flat Washer, 5/16 X .688 SAE, Stainless Steel
7	6	H31NSSLW	Lock Washer, 5/16, Split, Stainless Steel
8	6	H31CSSHN	Nut, 5/16-18, Hex, Stainless Steel

Have the following equipment ready before beginning this procedure:

- One drill
- One 3/8” drill bit
- One 7/16” wrench or socket
- One ½” wrench or socket
- A pencil
- Optional wall mounting kit

Follow the sequence below for Wall Mounting.

1. Pre-assemble the upper and lower wall mounting brackets to the cabinet as shown above.
2. Position the cabinet with mounting brackets against the wall and mark on the location of the mounting holes on the wall.
3. Drill six (6) 3/8” diameter holes completely through the wall at the locations marked in step 2.
4. Lift the cabinet with mounting brackets into position against the wall.
5. Insert 5/16” diameter bolts through the upper mounting bracket.
6. Secure the cabinet to the wall by installing 5/16” flat washers, lock washers and nuts to the bolts inserted in step 5.
7. Repeat steps 5 and 6 for the lower mounting bracket.

Lifting eyelets are provided to facilitate hoisting if desired.

Cabinet Grounding Information

Bonding and grounding should be done in accordance with the operating telephone company's standard procedures and comply with local electrical codes.

GROUND WIRE

The ground wire protects the electronics from voltage surges. A #6 ground wire must be properly grounded to provide lightning surge protection for the cabinet. Please follow this practice for attaching the ground unless local policies dictate otherwise.

For safety and performance reasons it is imperative that a cabinet be properly grounded. The following guidelines should be used to ground the cabinet unless local practices, rules, or regulations dictate otherwise.

Each door and equipment rack is grounded to the cabinet frame. The cabinet frame is connected to the internal grounding bus by a stranded wire. A similar ground wire must be used to connect the ground bus to each equipment ground lug. These ground wires may need to be removed temporarily to troubleshoot ground faults. The wire may be removed by unscrewing the screws that secure the green wire to the ground bus. Be sure to reattach these wires after troubleshooting and resolving any ground conflicts.

Be sure to ground the cabinet before connecting power to the cabinet. This grounding must be in effect at all times to safeguard personnel.

GROUNDING DIAGRAM AND PROCEDURE

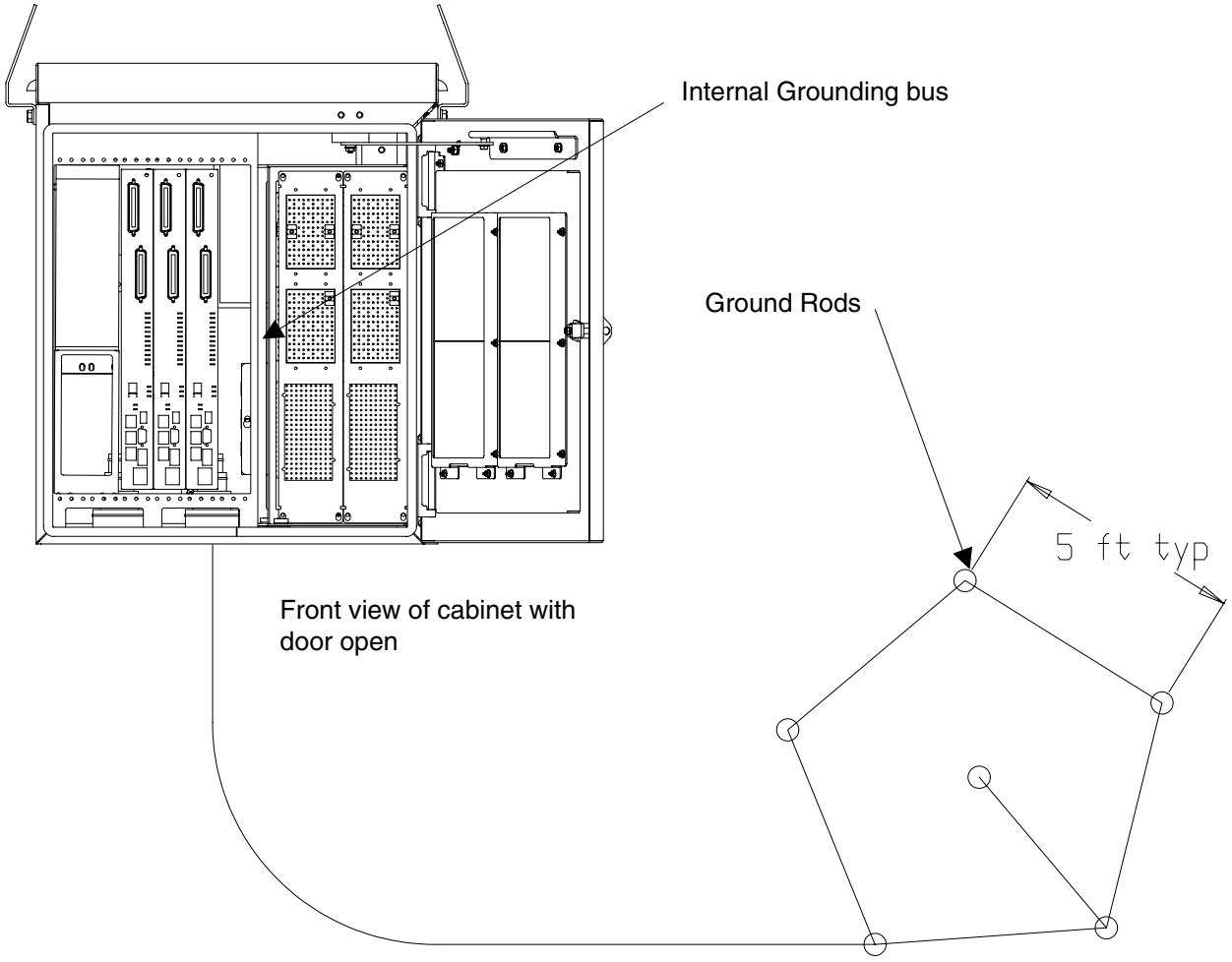

Figure H - Grounding Diagram

To ground the cabinet, see Figure H above.

1. Drive the ground rods into the ground near the cabinet location.
2. Use a Megger-type ohmmeter to measure the resistance between cabinet ground and the ground rod. The resistance must be 25 ohms or less.
3. If the resistance requirement in Step 2 is met, proceed to step 4. Otherwise, follow local practices to lower the resistance to ground.
4. Connect a #6 ground wire to the ground rod.

Protection/Cross Connects

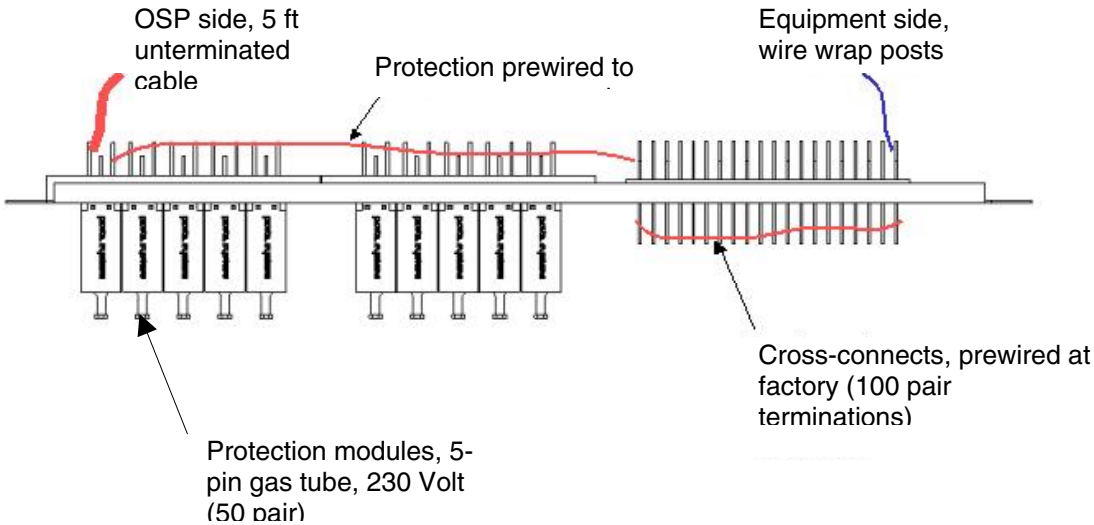
OSP side, 5 ft unterminated cable
Protection prewired to
Equipment side, wire wrap posts
Cross-connects, prewired at factory (100 pair terminations)
Protection modules, 5-pin gas tube, 230 Volt (50 pair)

Figure I – Protection/Cross Connect Panel, top view (50 pair)

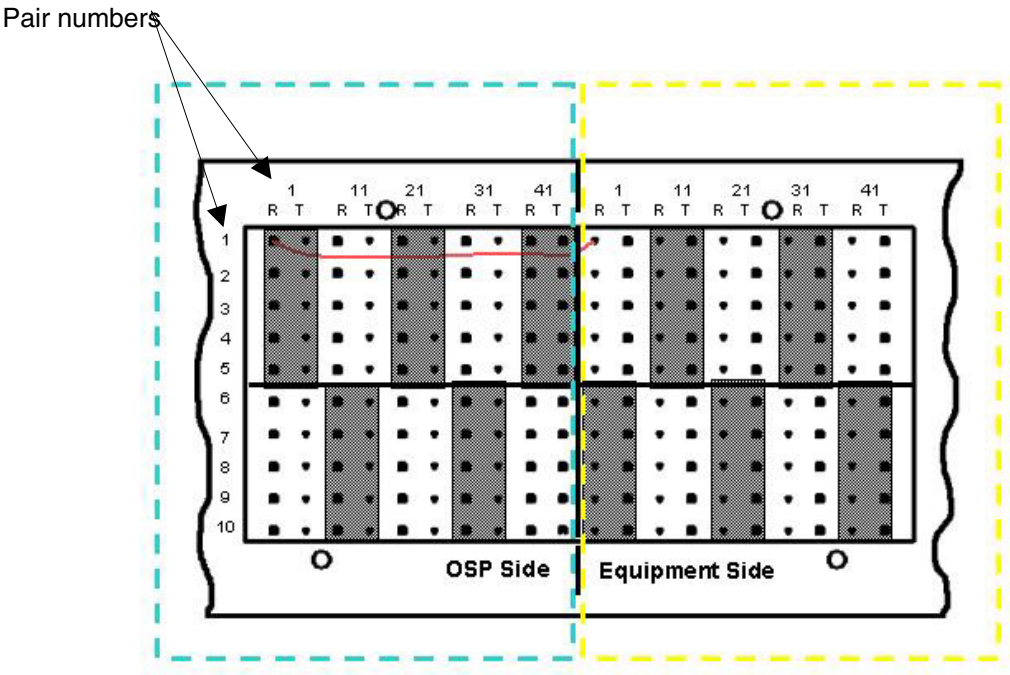

Figure J –Cross Connect Panel, front view

Protection/Cross Connect Wiring Tables

Table 2 – Protection Cross Connect Cable Wiring

Connector (DSL)		Connector (POTS)	
R T	**R T**	**R T**	**R T**
Pair #1 BLUE / WHITE	Pair #14 BROWN / BLACK	Pair #26 BLUE / WHITE	Pair #39 BROWN / BLACK
Pair #2 ORANGE / WHITE	Pair #15 SLATE / BLACK	Pair #27 ORANGE / WHITE	Pair #40 SLATE / BLACK
Pair #3 GREEN / WHITE	Pair #16 BLUE / YELLOW	Pair #28 GREEN / WHITE	Pair #41 BLUE / YELLOW
Pair #4 BROWN / WHITE	Pair #17 ORANGE / YELLOW	Pair #29 BROWN / WHITE	Pair #42 ORANGE / YELLOW
Pair #5 SLATE / WHITE	Pair #18 GREEN / YELLOW	Pair #30 SLATE / WHITE	Pair #43 GREEN / YELLOW
Pair #6 BLUE / RED	Pair #19 BROWN / YELLOW	Pair #31 BLUE / RED	Pair #44 BROWN / YELLOW
Pair #7 ORANGE / RED	Pair #20 SLATE / YELLOW	Pair #32 ORANGE / RED	Pair #45 SLATE / YELLOW
Pair #8 GREEN / RED	Pair #21 BLUE / VIOLET	Pair #33 GREEN / RED	Pair #46 BLUE / VIOLET
Pair #9 BROWN / RED	Pair #22 ORANGE / VIOLET	Pair #34 BROWN / RED	Pair #47 ORANGE / VIOLET
Pair #10 SLATE / RED	Pair #23 GREEN / VIOLET	Pair #35 SLATE / RED	Pair #48 GREEN / VIOLET
Pair #11 BLUE / BLACK	Pair #24 BROWN / VIOLET	Pair #36 BLUE / BLACK	Pair #49 BROWN / VIOLET
Pair #12 ORANGE/ BLACK	Pair #25 SLATE / VIOLET	Pair #37 ORANGE/ BLACK	Pair #50 SLATE / VIOLET
Pair #13 GREEN / BLACK		Pair #38 GREEN / BLACK	

Table 3 - Cross Connect Panel Wiring

WHITE / ORANGE BINDER	WHITE / BLUE BINDER	WHITE / BROWN BINDER	WHITE / GREEN BINDER
R T	R T	R T	R T
Pair #1 BLUE / WHITE	Pair #2 BLUE / WHITE	Pair #3 BLUE / WHITE	Pair #4 BLUE / WHITE
Pair #5 ORANGE / WHITE	Pair #6 ORANGE / WHITE	Pair #7 ORANGE / WHITE	Pair #8 ORANGE / WHITE
Pair #9 GREEN / WHITE	Pair #10 GREEN / WHITE	Pair #11 GREEN / WHITE	Pair #12 GREEN / WHITE
Pair #13 BROWN / WHITE	Pair #14 BROWN / WHITE	Pair #15 BROWN / WHITE	Pair #16 BROWN / WHITE
Pair #17 SLATE / WHITE	Pair #18 SLATE / WHITE	Pair #19 SLATE / WHITE	Pair #20 SLATE / WHITE
Pair #21 BLUE / RED	Pair #22 BLUE / RED	Pair #23 BLUE / RED	Pair #24 BLUE / RED
Pair #25 ORANGE / RED	Pair #26 ORANGE / RED	Pair #27 ORANGE / RED	Pair #28 ORANGE / RED
Pair #29 GREEN / RED	Pair #30 GREEN / RED	Pair #31 GREEN / RED	Pair #32 GREEN / RED
Pair #33 BROWN / RED	Pair #34 BROWN / RED	Pair #35 BROWN / RED	Pair #36 BROWN / RED
Pair #37 SLATE / RED	Pair #38 SLATE / RED	Pair #39 SLATE / RED	Pair #40 SLATE / RED
Pair #41 BLUE / BLACK	Pair #42 BLUE / BLACK	Pair #43 BLUE / BLACK	Pair #44 BLUE / BLACK
Pair #45 ORANGE/ BLACK	Pair #46 ORANGE/ BLACK	Pair #47 ORANGE/ BLACK	Pair #48 ORANGE/ BLACK
Pair #49 GREEN / BLACK	Pair #50 GREEN / BLACK		

Fan/Filter Replacement

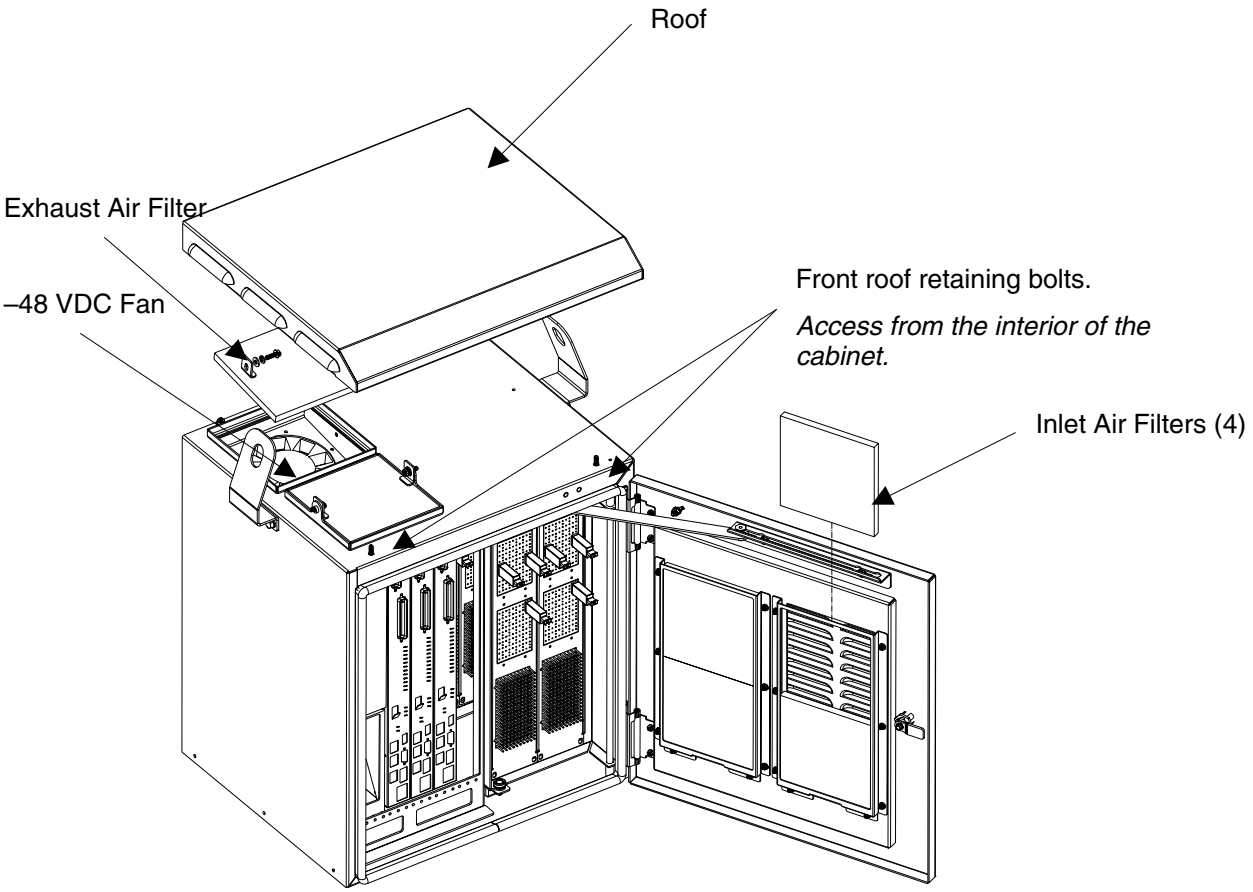

Figure K – Fan/Filter Replacement Diagram

The 4300 Remote BAC is equipped with one –48 VDC fan assembly located in the top of the cabinet behind the rack-mounted equipment. The fan is retained by four 4 mm screws. It is accessible from inside of the cabinet.

There are four inlet air filters mounted to the inside of the front door. These filters can be replaced by opening the door and simply sliding them vertically out of their retaining frame.

The air exhaust filter is located in the top of the cabinet above the –48 VDC fan. The exhaust filter is accessible by removing the roof from the cabinet. To remove the roof, first open the front door and unscrew the two front roof retaining bolts. These bolts are located near the front coners of the top of the cabinet (see above figure). They are accessible from the interior of the cabinet. After removing the front retaining bolts the roof can be slid to the left and lifted off of the cabinet. Remove the “L” tabs that retain the filter by unscrewing the ¼”-20 screws.

Filter Maintenance

It is recommended that you clean the filters every three to six months and replace them every two years. However, more frequent maintenance may be required depending on the environment in which the cabinet is installed.

EXTERNAL WIRING

External connections are effected using MS^2 connectors outside of the cabinet. For information about the use of MS^2 connectors, see the *3M MS^2 Modular Splicing System Instructions*, document number 78-8130-4094-2-A, available at www.3m.com. (Type **78-8130-4094-2-A** into the search box presented at that site.)

LINE POWER

To calculate how many line pairs are required to power the 4300 Remote BAC, you can use the 4300 Remote BAC Line Power Calculator, available at at **www.paradyne.com**. Select *Support → Tools.*

SCHEMATIC WIRING DIAGRAMS

Figure L - Model 1 Schematic Wiring Diagram

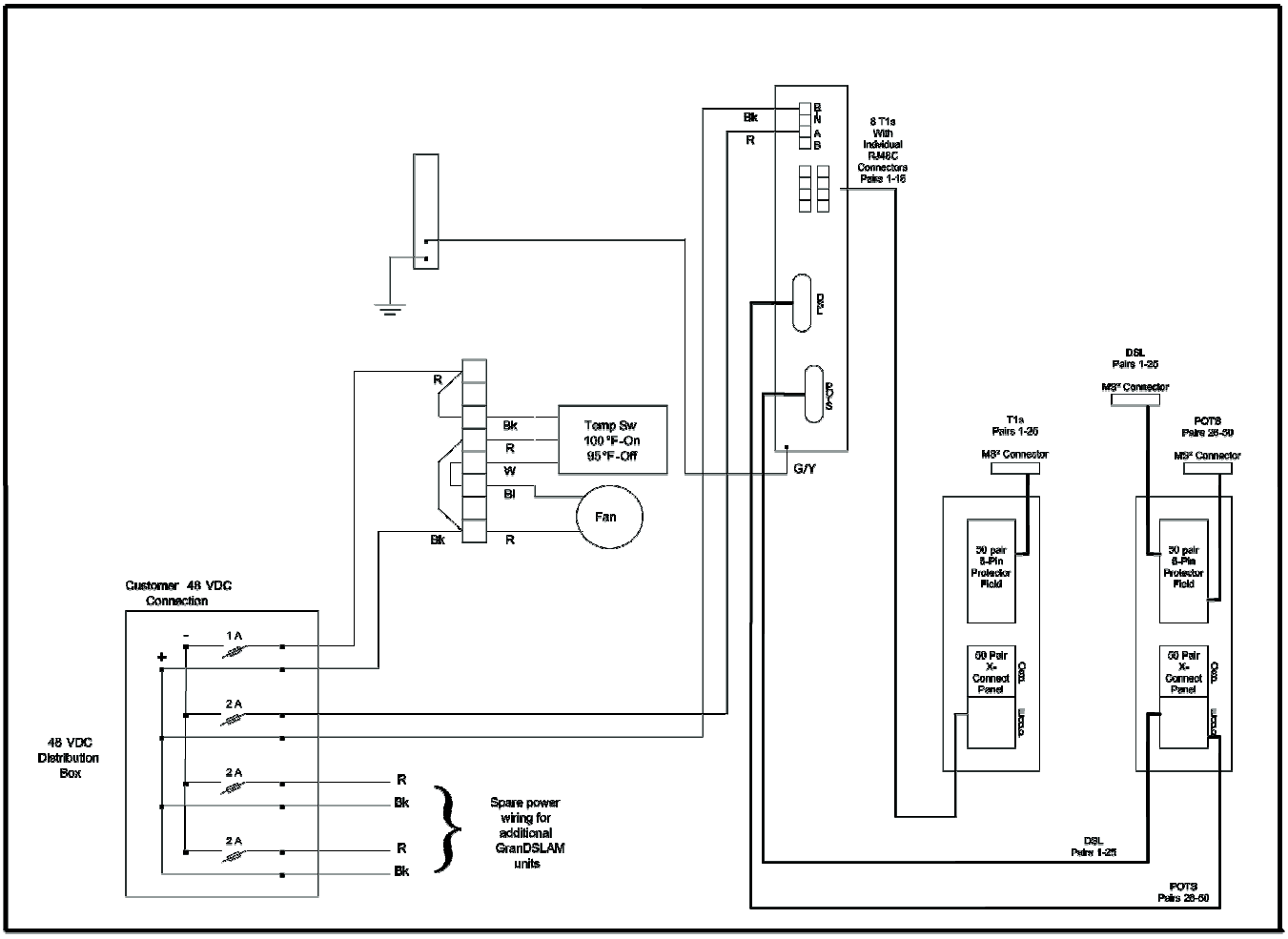

Figure M - Model 2 Schematic Wiring Diagram

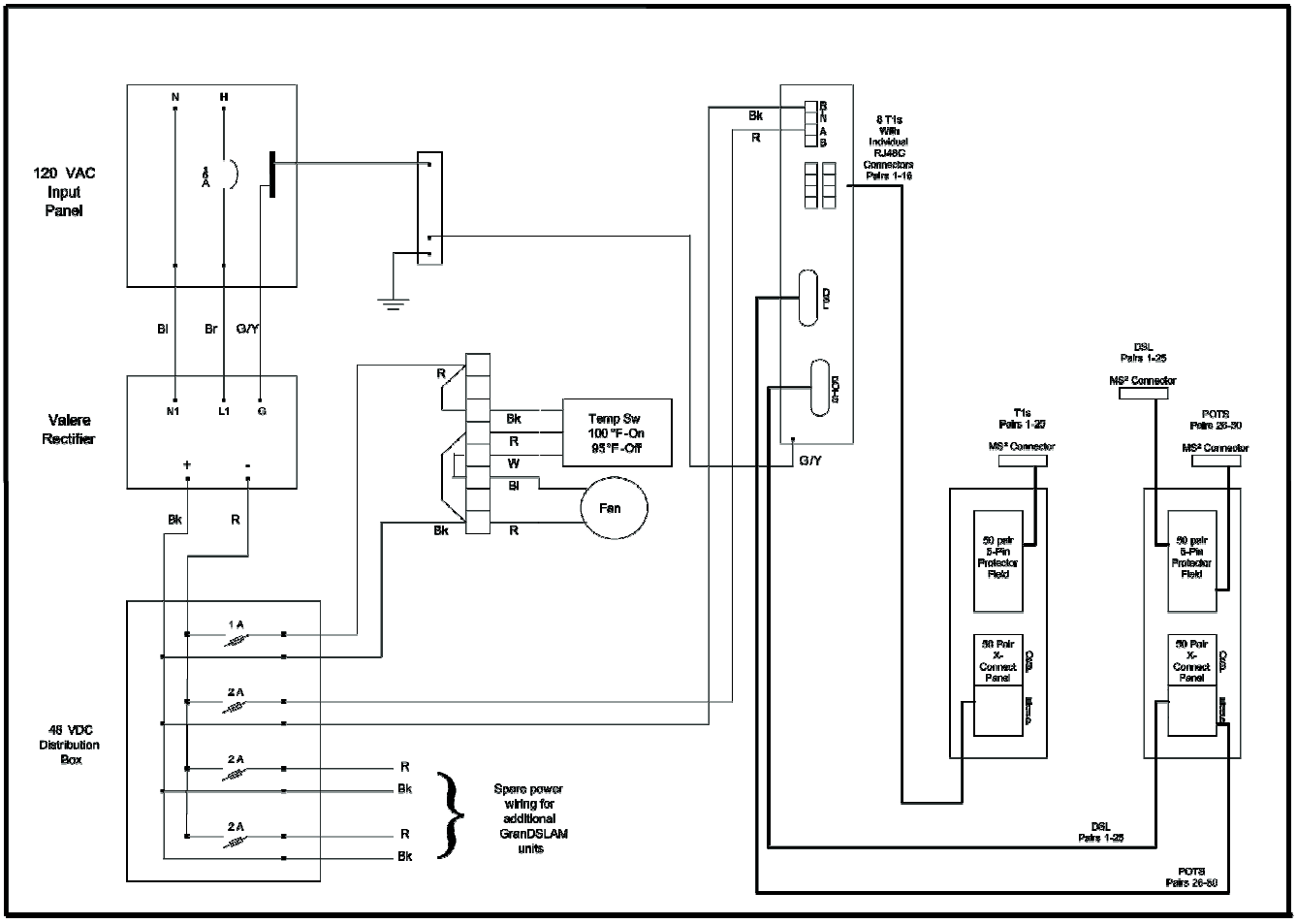

Figure N - Model 3 Schematic Wiring Diagram